How Members' Corporate Responsibility and Co-operative Identity Affect their Achievement of Cooperatives Goals: A Case Study of Poultry Farm Holders in South-West Nigeria

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Abstract

Individual's commitments towards societal principles/ identities might, and or, might not reflect as an individualistic benefit/ reward functions of such society among members, especially in socioeconomic settings. This study hence sets, to investigate the magnitudes of causality on Cooperators' participation (CP), production characteristics, multidimensional wellbeing alongside their determinants, using data obtained from 93 Cooperator poultry farming households collected via multistage sampling. Probit regression, Multiple regressions, and the Alkire-Foster Multidimensional poverty indices were used in data analyses. Descriptive analyses result showed that poultry farmers with; training access, regular meeting attendance, and longer membership duration operates larger farms with relatively higher output while, monthly meeting significantly increased farm output at P≤0.1, but cooperative membership duration negatively correlates with poverty. Probit analyses result showed that total per capita expenditure, and gender of household head positively influences frequency of meeting attendance regularity (MAR) significantly at; P≤0.1, and P≤.0.1 probabilistic levels respectively, while it is negative for years of formal education, and significant at P≤0.01. For cooperative membership duration (CMD); years of formal education, and meeting regularity status negatively determined CMD significantly at; P≤0.01, and P≤0.05 respectively, but multidimensional welfare, years of farming experience, and total per capita expenditure positively influences CMD significantly at; P≤0.01, P≤0.01, and P≤0.01 respectively. Finding based policies were further proffered.

Keywords: **Cooperative Participation, Cooperative Membership Duration, Alkire & Foster multidimensional Poverty Indices, Econometric analyses, Production characteristics.**

1 Introduction

Association membership usually involves nomenclatural, or statutory identification of individuals with a group, or association, while participation is another concept that has to do with membership status beyond mere statutory, or nomenclatural association

with the society. Participation involves deliberate, and conscious commitment of member's resources to well support and getting involved, hereby promoting the interest of the organization, and or, the interest of the participants. Achieving this usually involves adherence, and commitment to the guiding or established principles of the society.

As opposed to contractual servicing, Cooperators usually pool up resources to meet needs that could not be idiosyncratically addressed. According to Mghenyi *et al,* 2022, small scale farmers who solely raise their poultry birds for their meat and eggs outputs, but individually rears below 1000 birds are widespread in Nigeria. According to Ijere (1992), people cooperate since they cannot attain their goals alone, hereby inducing the cooperative spirits. This is to achieve their joint aims through a selfenlightened interest rationale to cooperate, which invariably facilitates the consolidation of cooperatives identity among the cooperators, thereby easing up the possibilities of achieving the cooperatives goals and objectives among members.

The International Cooperative Alliance (ICA, 2015) defined cooperative as "an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise". Success of cooperatives, which is a measure of her members' performance in areas of specific or general interests, may or may not significantly depend on magnitudes of members' participation. This view is further consolidated in the findings of Österberg, and Nilsson (2009).

However, beyond some level of attendant social-economic activity-based association of persons, Cooperative identity can be consolidated through effective participation among the Cooperators for them to be adequately achieved. On the contrary, the problem of cooperative identity may arise when they experience ownership, or management control crises, thereby providing loopholes for negative externalities.
For example, Mwelukilwa (2001) obtained that, "heavy externalities, has systematically eroded, and diminished the poverty reduction potential of cooperatives" hence, promotion of genuine-committed membership participation and membership control in cooperatives becomes necessary. This is nonnegotiably required especially in developing countries like Nigeria where poverty is a major menace in the development transitional cycle phase that the country is.

Recently across 107 developing countries where Nigeria is inclusive, a minimum of 1.3 billion individuals (22%) lives below the poverty line (UNDP; OPHI; 2020). Also, Harkelius *et al*. (1996) states that, "Members participation in cooperatives has always

been an important issue, because members' active participation in, and loyalty to a cooperative business is crucial for the success of the cooperatives", which builds on cooperative identity.

Cooperative identity involves the values of democracy, equality, self-responsibility, equity, self-help, solidarity, and the tradition of their founders, cooperatives also believes in the ethical values of honesty, social responsibility, openness, and care for others (ICA, 1995), and their achievement may be influenced through adherence to the cooperatives principles such as members' participation in; economic, education, and training activities, alongside information dissemination, in addition to voluntary and open membership amongst others, wherein participation is demonstrated through regular meeting attendance, sustained membership, resource commitment, etc., while these processes are hypothesized in this study to impact cooperative identity.

It is worth noting that there are limited studies that investigated the cooperative participation impact, while many of the existing studies that investigated the impact, or effectiveness of cooperative membership have not gone beyond comparative approach (Membership versus Non membership) to further exploring some within cooperative variable impact measurements, wherein this study explores the effect of some key cooperatives participation variables such as duration of membership, frequency of meeting attendance, training, etc., on cooperative goals achievement. This will help detect and establish the existing interplays between these important cooperative membership variables; their impact on production; and multidimensional welfare (cooperative goals), alongside their determinant factors.

Regarding a few related existing works, Taiwo, and Okafor, (2011) worked on "Effect of membership participation on cooperative performance: a study of selected multipurpose cooperatives", using a sample size of 112 respondents. Data were analyzed with both inferential and descriptive statistics due to the nature of data that limited usage of econometric analytical functions. They found that the relationship between members' participation and cooperative performance is significant however, the study focuses more on cooperative membership participation while cooperatives performance was hinged on members' perception without a cooperative performance tangible/quantitative measure, also not related to any cooperatives identity measure, or cooperative value such as; wellbeing promotion, output level, etc., were not captured, which this study sets to address including econometric analyses.

Also in China, Qiao Liang *et al.* (2015) worked on "Members Participation, Social Capital, and Cooperative Performance, using a sample of 147 farmers' cooperatives in China". The results showed a positive relationship between some dimensions of mem-

bers' participation in training, social capital, and general meetings. However, their research focused more on members external affiliations tagged "social capital" without linking such to be induced by cooperative membership participation or otherwise, while cooperative identity and cooperative values are not much emphasized, which this study seeks to improves upon.

In addition, Shi Zheng *et al.* (2011) in their research titled "Farmers' behaviors and performance in cooperatives in Jilin Province of China": A case study using a large sample dataset from Jilin Province to examine the mechanism of decision-making among farmers in becoming cooperators and analyzes farmers' awareness of cooperatives, willingness to participate, their behaviors and cooperatives performance. Their empirical finding showed that farmers' education, agricultural products variety, low prices of agricultural products, agricultural production costs, risks, etc., are the most influential factors in deciding behaviors. Their research did not do much telling us how much cooperative participation influences these performances, while focusing on crop production decision makings without a linkage to cooperative participation, due to data-imposed limitation, which this study furthers upon.

In Malaysia, Ching Choo Huang *et al.* (2015) researched on "Influence of Cooperative Members' Participation and Gender on Performance", using the annual reports data from 2008 - 2012 from 34 cooperative societies in Malaysia. They found male dominance in the board of cooperatives in Malaysia, and that there is insignificant relationship between the gender composition of the cooperative board and their cooperative performance, while mean of members' participation (regularity of directors at meetings) was high and did not significant associate with cooperative performance. The analytical scope in their study was focused on members' participation and gender performance, without necessarily reckoning with cooperative identity wherein this study integrates cooperative participation variables and its effect on cooperative identity alongside their determinants.

Furthermore, numerous research on multidimensional welfare historically depended on the single dimension; expenditure approach, i.e. the unidimensional approach, and uncommon to find studies that adopted the multidimensional poverty measure approach in measuring participation. This is a limitation (Alkire and Foster 2011). According to Sen (1985), poverty is, in relation to lack of basic capabilities or basic needs. These thus translates poverty to be multidimensional and should hence be measured by aggregating key wellbeing indicators.

The correlates of some cooperative identity linked variables (e.g. production output level, welfare statuses etc.) i.e., the level of achievement of some dimensions of cooper-

ative identity goals as influenced by cooperatives participation is yet relatively obscurely established via empirical findings. In addition, the determinants of cooperative membership duration as well as the determinants of membership participation as varied from determinants of membership is highly worth investigating.

This study thereby sets to investigate how production characteristics, and multidimensional welfare correlates with cooperators' participation with specific objectives of; describing the existing nature of cooperator participation behaviors among cooperators, and how cooperative participation behaviours of cooperators influences their production, and multidimensional poverty level. Also, the determinants of cooperators' participation, and determinants of cooperative society membership duration among the respondents were analyzed.

1.2 The Collective Action Theory (Actionist theory)

Collective action theory was propounded by Marshall in (1998) and revised in 2014 (Marshall 2014). The theory established that individuals who are members of some institutional/organisational arrangements that shared established norms/principles are well capable of sustaining cooperation (participation) that advances the achievement of common interest of their groups. This theory well acknowledged the Touraine's self production of society radical theoretical framework in 1973, where sociology of society (Ss) as adapted for this study is a function of a sociology of actors (Sa), and their relationships can be expressed as follows i.e.,

$$Ss = f(Sa) \quad \ldots\ldots\ldots\

The collective action is that action taken by a group (either indirectly or directly) in the pursuit of members/organizational established interests. This theory can be further adapted to a situation where the actions of individuals (Sa_i) in a society in form of identities, commitment, or participation (Sp_i) in the organizational activities (e.g., via regular meeting attendance, physical presence in organized trainings, etc.) organized as their goal achievement process imposes a direct outcome (Ss_i) on individuals in the organisation individually or collectively. Such goals could be for instance, increased market access, poverty reduction, or farm output increment as applied to this study.

1.3 Hypothesis

Ho_1 = Cooperators participation behaviours does not significantly influence production level

Ho_2= Cooperators participation behaviours does not significantly influence multidimensional poverty level

Ho_3 = There are no significant determinants of cooperative participation among cooperators

Ho_4 = There are no significant determinants of cooperative membership duration among cooperators.

2 Materials and Methods

2.1 Study area/ Data Source

This study utilised a multistage sampling technique to collect empirical data from poultry farm holders in Southwest Nigeria (Oyo State). The State comprises 33 Local Government Areas- LGAs with about 7.8 million persons (NBS, 2017). Oyo State was purposively selected from the existing six States in the South West zone for the first stage, due to existence of large poultry farm holders therein (Oyo State Government, 2023), followed by a stratification into a non-heterogeneous and non-overlapping categories of; dense poultry production area and less dense poultry production area strata based on the concentration of poultry production activities, from which two agricultural zones (i.e., Oyo and Ibadan/Ibarapa respectively) are randomly selected per strata from existing the four Agricultural Zones within this State (Ogbomoso, Ibadan/Ibarapa, Saki and Oyo). Third sampling stage was a random selection of three Local Government Areas (LGAs) per Ibadan/Ibarapa Zone (Ibadan North, Ibadan South, and Ido), and Oyo agricultural zones (Oyo Central, Oyo west, and Afijio) which is followed by random selection of 10 farm settlements/communities; one community/farm settlement within the Ibadan North, Ibadan South LGAs and two from Ido LGA (owing to relatively larger poultry production activities taking place in Ido), while one community/Farm settlement was selected per Oyo central, Oyo west, and four communities/farm settlements from Afijio LGA (owing to relatively larger poultry production activities taking place in Afijio), from which 93 response units were validated.

2.2 Analytical technique

2.2.1 Production characteristics

Production scale, and farm output profile are used to describe production characteristics. Farm production scale grouping follows that of Omotosho and Oladele (1988), Subhash *et al.* (1999), and Ojo (2003), where farms having ≤ 1000 birds were considered as small scales, those with >1000-5000 birds are classified as medium scales, while those having >5000 and above birds are regarded as large-scale poultry farms.

2.2.2 Cooperative participation

As accommodated by the available data, Cooperative participation was a measure of Cooperative membership duration (CMD) in years, frequency of meeting attendance regularity (FMA), and individual's access/participation in trainings (exogenous).

2.2.3 Multidimensional Poverty Index (MPI)

The multidimensional poverty indices (MPI) developed by Alkire and Foster (2007), and Alkire *et al.* (2011), and Alkire, Roche, and Vaz (2017), was used to quantify the multidimensional poverty indices of the poultry farmers. This methodology included two steps: an identification stage (k) to identify 'who is poor' by considering the set range of deprivations suffered, and an aggregation stage which generates the actual poverty measures (M).

Table 1: Dimensions, indicators, and weights

Dimensions	Indicators	Measurements	Related to	Weights
Education	Schooling (years)	Deprived when no household member has completed at least 9 years of formal	SDG 4	1/6
	Child enrolment	education Deprived if any school-aged child is out of school in years 1 to 6	SDG 4	1/6
Living Standard	Electricity	Deprived when household lacks power	SDG 7	1/18
	Drinking water	supply Deprived when household lacks access to clean drinking water or clean water is more than 30 minutes' walk from home	SDG 6	1/18
	Sanitation	Deprived when lacks an improved toilet or if their toilet is shared	SDG 6	1/18
	Housing	Deprived if hut/house/ has a dirt, sand or dung floor or is built with substandard material	SDG11	1/18
	Cooking fuel		SDG 7	1/18
	Assets			

		Deprived if they cook with wood, dung, or charcoal	SDG12	1/18
		Deprived when household lacks more than one of: radio, TV, bike, telephone, or motorbike, and do not own a car or tractor		
Health	Health care quality	Deprived when household lacks access to a quality health care	SDG 3	1/6
	Health as a limiting factor	Deprived when health is limiting factor in most regular activities	SDG 3	1/6

Note: SDG1 is eradicate extreme poverty; SDG2 is Zero Hunger; SDG3 is good health and wellbeing; SDG4 is Quality education; SDG6 is clean water and sanitation SDG7 is Affordable and clean energy; SDG11 is sustainable cities and communities; SDG12 is Responsible consumption and production. SDG (2015).

When any household "X" is subjected to a deprivation cut-off "z" and a poverty threshold "k", a household possessing the indicator of each dimension is assigned the corresponding score/weight. The maximum scoring is 100%; when each dimensions is equally weighted. A cut-off of 33.3%, which is equivalent to one-third of the weighted indicators is utilised to censor the poor from the non-poor and can be obtained as follows;

$$\text{Ho}\ (X; k; Z) \equiv \frac{1}{N}\sum_{n=1}^{N} \text{I}\ (\text{Cn}\ \geq k) = \frac{q}{N} \quad \ldots\ldots (5)$$

$$\text{A}\ (X; k; Z) \equiv \frac{\sum_{n=1}^{N} \text{I}\ (\text{Cn} \geq k)\text{Cn}}{q} = \frac{\sum_{1}^{q} c}{q} \quad \ldots\ldots (6)$$

$$\text{Mo} \equiv \left[\frac{1}{N}\sum_{n=1}^{N} \text{I}\ (\text{Cn}\ \geq k)\right]\left[\frac{\sum_{1}^{q} c}{q}\right] = \text{Ho} \times \text{A} \quad \ldots\ldots (7)$$

Where: Ho= Head count ratio, A= Average deprivation intensity, Mo= Adjusted headcount or multidimensional poverty index, *q*= incident of multidimensionally poor, *N*= population size, *C*= deprivation count, " I " is an indicator which assumes the value of 1 when the parenthesised expression is true and zero when otherwise.

2.2.4 Determinants of Cooperative participation variables

Out of all the cooperative participatory variables, ranging from access to training, frequency of training, meeting attendance regularity, and duration of cooperatives membership; only frequency of meeting attendance regularity (FMA) variables, and membership duration (CMD), are fitted for a regression specification model. This further owes to the fact that both variables are human controlled, compared to other variables

(access to training, and frequency of training) which are largely institutionally controlled, as also provided for by data scope.

Binomial regression analysis

A binomial Probit regression analytical model was used to derive the factors influencing frequency of meeting attendance regularity (FMA) among cooperatives. Given a dualistic response variable Y_i and an explanatory vector variable X_i which is hypothesised to influence Y_i, and presented as follows:

$$\Pr\{Y_i = 1 \mid x_i\} = F(\beta' x_i) = (\beta' x_i) \quad \text{..... (8)}$$

Where; Y_i = binary choice regularity variable , Xi = explanatory variables.

$$Y_i^* = \beta_0 = + \sum_{n=1}^{N} \beta_i X_i + \mu_i \quad \text{..... (9)}$$

Y_i = binary the dependent variable. (1 = regular in meeting attendance or 0 if otherwise).

X_i are set of explanatory variables; X_1 = Total per capita expenditure, X_2 = Gender of household head, X_3= Primary occupation (dummy; Farming=1; Otherwise=0), X_4=

Farm size capacity layers, X_5= Years of formal education, X_6= Marital status, X_7 = credit access (Dummy; yes=1, no =0).

The dichotomous variable assumption state of Y_i is specified as;

$$Y_i = \begin{cases} 1 & if\ Y_i^* > 0 \\ 0 & otherwise \end{cases} \quad \text{.....(10)}$$

Due to the non-linearity assumption of the probit model, the marginal effect which is the coefficient of interest had to be generated, with the model specified as follows.

$$\frac{dy_i}{dx_i} = \phi(\beta' x_i)\beta_i \quad \text{.....(11)}$$

Where ϕ is the standard normal distributional probability density function.

Multiple regression.

The multiple independent variable regression model was utilised to estimate duration of cooperatives membership (CMD) and the influencing factors. The multiple regression was employed due to the continuous nature of the regressand and its capability to estimate the maximum likelihood and depth (marginal effect) in its coefficient, making it superior to the dichotomous Logit and Probit models. The OLS model specification is as follows; $$Y_i = \beta_0 + \sum_{i=1}^{n} \beta_i X_i + \mu_i \quad \text{..... (12)}$$

Explicit model specification:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \cdots + \beta_n X_n + \mu \quad \text{..... (13)}$$

Where, Y_i= dependent variable i.e., Duration of membership (in years), X_i = Set of explanatory variables, μ_i = Error term and $E \sim N(0, \sigma^2)$, β = Parameter estimates; β_0=Intercept, β_1=Slope.

X_1 = Total per capita expenditure (Naira), X_2 = Household size, X_3= Regularity status (Dummy; regular=1, otherwise=0), X_4= Average quantity of daily output (In crates), X_5= Years of farming experience, X_6 = Cooperatives membership status (Dummy);

Member=1, None membership=0).), X_7 = Credit access (Dummy; yes=1, Otherwise=0), X_8 = Level of formal education (years), X_9 = Multidimensional welfare score.

3 Result and discussion.

3.1 Access to training and output production scale.

The result of the analysis on the relationship between training and scale of poultry production is presented in table 2, which shows that farmers with access to training can operate a relatively larger farm size and vice versa. This positive relationship is expected to improve their wellbeing in turn.

Table 2: Access to training and production scale

Production / Access to training	Small scale	Medium scale	Large scale	Pooled
Yes	13(40.63)	34(60.71)	4(80.00)	51(54.84)
No	19(59.38)	22(39.29)	1(20.00)	42(45.16)
Total	32(100)	56(100)	5(100)	93(100)
				Diff:2063.71

Source: Field Survey data analysis result. Percentage parenthesized.

3.2 **Relationship between access to training and daily production output level.**

The result of the analysis on the relationship between training and daily output level among layer egg producers is presented in table 3, which shows that poultry farmers with access to training produces a relatively higher output, relative to those without training access.

Table 3: Access to training and daily output level

Daily output / Access to training	0-20	21-40	≥41	Pooled
Yes	17(47.22)	16(64.00)	18(56.25)	51(54.84)
No	19(52.78)	9(36.00)	14(43.75)	42(45.16)
Total	36(100)	25(100)	32(100)	93(100) Diff: -43.352

Source: Field Survey data analysis result. Percentage parenthesized.

3.3 Regular meeting attendance and output production scale

The result of the analysis on the relationship between regular meeting attendance and Production Scale among layer egg producers is presented in table 4, which shows a positive relationship between Farm size and regular Cooperative meeting attendance.

Table 4: **Regular meeting attendance and output Production Scale**

Production Scale / Meeting attendance	Small scale	Medium scale	Large scale	Pooled
Irregular	8 (25.00)	14(25.00)	1(20.00)	23(24.73)
Regular	24(75.00)	42(75.00)	4(80.00)	70(75.27)
Total	32(100.00)	56(100.00)	5(100.00)	93(100.00) Diff: -1371.2

Source: Field Survey data analysis result. Percentage parenthesized.

3.4 Relationship between regular meeting attendance and average daily farm output

Result of the analyses on the relationship between regular meeting attendance and Production Scale among layer egg producers is presented in table 5. It shows a positive relationship between regular Cooperative meeting attendance, and daily poultry farm output level.

Table 5: Regular meeting attendance and daily output level

Daily output (crates) / Regularity of attend-	0-20	21-40	≥41	Pooled
Irregular	10(27.78)	5(20.00)	8(25.00)	23(24.73)
Regular	26(72.22)	20(80.00)	24(75.00)	70(75.27)
Total	36(100)	25(100)	32(100)	93(100)

Source: Field Survey data analysis result. Percentage parenthesized.

3.5 Relationship between cooperative membership duration and daily output level

The result of the analysis of the relationship between Cooperatives membership duration and daily output level among layer egg producers is presented in table 6. The result shows a positive relationship between Cooperatives membership duration and average daily output level of egg in the study area.

Table 6: **Cooperatives membership duration and daily output level**

Daily output / Membership duration	0-20	21-40	≥41	Pooled
1-3	12(33.33)	11(44.00)	8(25.00)	31(33.33)
4-6	12(33.33)	6(24.00)	6(18.75)	24(25.81)
≥7	12(33.33)	8(32.00)	18(56.25)	38(40.86)
Total	36(100.00)	25(100.00)	32(100.00)	93(100.00)

Source: Field Survey data analysis result. Percentage parenthesized.

3.6 Cooperatives membership duration and farm size

Analytical estimate result on the relationship between Cooperatives membership duration and farm size among layer egg producers in table 7 below shows a positive relationship between length of Cooperatives membership duration and farm size among the poultry farmers in the study area.

Table 7: Cooperative membership duration and farm size

Farm Size / Membership duration (years)	Small scale	Medium scale	Large scale	Pooled
1-3	15(46.88)	15 (26.79)	1(20.00)	31(33.33)
4-6	10(31.25)	13(23.21)	1(20.00)	24 (25.81)
≥7	7(21.88)	28(50.00)	3(60.00)	40(40.86)
Total	32(100.00)	56(100.00)	5(100.00)	93 (40.86)

Source: Field Survey data analysis result. Percentage parenthesized

3.7 Significance of relationship between meeting frequency and daily output level

The result of the analysis on the relationship between meeting frequency and daily output level among layer egg producers is presented in table 8. The result shows that monthly meeting has a positively significant relationship with production output level and significant at 10% probabilistic level hence, we reject the null hypothesis. This is likely because those who meets monthly makes time to well organize, plan, and adequately prepare for their meetings hereby benefiting more, than when otherwise.

Table 8: Frequency of meeting and daily output level

Daily output category (Crates) / Frequency of training	0-20	21-40	≥41	Pooled
Weekly	22 (61.11)	2 (8.00)	9 (28.13)	33(35.48)
Monthly	14(38.89)	23(92.00)	23(71.88)	60(64.52)
Total	36 (100)	25(100)	32(100)	93 (100) Diff: 64.77 P=0.1414*

Source: Field Survey data analysis result. Percentage parenthesized.

3.8 Meeting frequency and production scale

The result of the analysis on the relationship between meeting frequency and production scale among layer egg producers is presented in table 9. The result showed that those who hold meetings monthly operates relatively larger farm scales.

Table 9: Frequency of meeting and production scale

Production Scale / Frequency of training	Small Scale	Medium scale	Large scale	Pooled
Weekly	15 (46.88)	17 (30.36)	1 (20.00)	33 (35.48)
Monthly	17 (53.13)	39 (69.64)	4 (80.00)	60 (64.52)
Total	32(100)	56(100)	5(100)	93(100) Diff:-2043.6

Source: Field Survey data analysis result. Percentage parenthesized.

3.9 Cooperative Membership duration and multidimensional poverty

The outcome of the analyses on the relationship between cooperative membership duration and multidimensional poverty among layer egg producers is presented in table 10. The result shows that there exists a negative relationship between duration of membership (in years) and poverty among the layer egg producers in the study area. This shows the effectiveness of cooperatives in multidimensional welfare promotion among its members with time.

Table 10: Duration of cooperative membership profile

Poverty indices / Duration (Years)	AIOD (A_0)	(H_0)	MPI (M_0)	Poor	Nonpoor	Pooled
1-6	0.376984	0.342	0.1289	14 (87.50)	41 (53.25)	55 (59.14)
7-12	0.444444	0.111	0.0493	2 (12.50)	18 (23.38)	20 (21.51)
≥13	0.00	0.00	0.000	0 (0.00)	18 (23.38)	18 (19.35)
Pooled	0.416667	0.172	0.0717	16	77	93(100.00)

Source: Field survey data analysis result.

3.10 Determinants of meeting attendance regularity (MAR) and cooperative membership duration (CMD)

Tables 2-10 provides a descriptive analysis on the relationships between MAR variables and CMD variables with production output and multidimensional poverty level while tables 11-12 provides a more concise econometric analyses.

3.10.1 Determinant factors of meeting attendance regularity (MAR)

The result of the Probit regression analysis conducted to determine the factors influencing meeting attendance regularity provides a statistically valid result. It showed that; per capita expenditure positively influences meeting attendance regularity, and

this may be because members' commitment to society's activities is one of the factors considered when allocating benefits hence, members frequently present in meetings are predisposed to more opportunities which in turn positively improves their income, in addition to their return on investment/capital contributions hence, increased per capita expenditure. This also attunes with the Keynesian theory of income and expenditure, with a coefficient of 2.83e-06 and significant at 10% probabilistic level hence, we reject the null hypothesis.

Besides, gender of household head positively influences participation regularity. This may be because houses with male household heads are likely to be more predisposed to meeting attendance due to their lesser engagement with domestic related activities, and decision makings. This was found to be significant at 10% probabilistic levels. Furthermore, years of formal education was found to negatively influence regularity of meeting attendance. This is likely because members with high formal education are likely to be saddled with some other engagements, duties, or responsibilities that deprives them from regular meeting attendance. This was found to be significant at 1% probabilistic level.

Table 11: Determinants of meeting attendance regularity (MAR)

Variables	dy.dx^{-1}	Standard Error	P-Value
Per capita expenditure	2.83e-06 *	6.46e-06	0.102
Access to credit	0.1171803	0.4121315	0.288
Gender	0.2316342*	0.4847762	0.074
Primary occupation	-0.3424957	0.3717516	0.357
Years of formal education	-0.0495865***	0.0688987	0.007
Farm size	0.0000176	0.0000983	0.503
Marital status	0.1420461	0.395081	0.179
_cons	2.41832**	1.189321	0.042
	LR chi^2(7) = 15.49		
	Prob > chi^2 = 0.0302		
	Pseudo R^2 = 0.1489		

Source: Field Survey data analysis result. *** P≤0.01, **P≤0.05,*P≤0.10.

3.11 Log-likelihood analysis on determinants of cooperative membership duration (CMD)

The analysis provided a good fit as the Variance Inflation factor, Coefficient of determination, and adjusted R^2 diagnostic estimates are highly validated.

The result showed that years of formal education negatively influenced cooperative membership duration significantly at 1% probabilistic level hence, we reject the null hypothesis. This likely owes to the fact that educated farmers benefits relatively lesser than their uneducated, or less educated counterparts. This suggests the need to provide for improved cooperatives education/training capacity to well meet the needs of all members, irrespective of their exposures, or latent knowledge scope. Besides, multidimensional welfare significantly at 1% significant probabilistic level. This is likely due to the satisfactory cooperative identity benefits obtained from cooperatives by cooperators relative to when it is otherwise.

Also, meeting attendance regularity status negatively affects cooperatives membership duration at significantly 5% probabilistic level. This is likely due to the law of diminishing marginal utility of cooperators' response function hence, raising the need to make cooperative activities more dynamic, and less monotonous.

Furthermore, years of farming production experience positively influences cooperatives membership significantly at 1% probabilistic level. This possibly is due to the existence that farmers with increased length of farming experience may tend to maintain their cooperative membership to sustain or expand their farm business. Besides, total per capita expenditure was found to positively influence duration of cooperative membership significantly at 1% probabilistic level. This may be due to the possibility that cooperatives help provide financial supports required to finance investment expenditures which they can enjoy pari passu with time.

Table 12: Determinants of cooperative membership duration (CMD)

Variables	VIF	Coefficients	Standard Error	P-Value
Formal education (Years)	1.53	-0.6736438***	0.1585833	0.000
Multidimensional welfare	1.52	18.22243***	4.168241	0.000
Household size	1.85	0.1613505	0.3084344	0.602
Farming experience	1.31	0.3952022 ***	0.0575442	0.000
Meeting regularity status	1.07	-2.42219**	1.189176	0.045
Access to credit	1.24	0.7967378	1.300217	0.542
Output	1.14	0.0014174	0.0026261	0.591
Per capita expenditure	1.69	0.0000307***	0.0000116	0.010
Constant		9.829828**	4.156232	0.018
		Mean VIF = 1.42		
		Prob > F = 0.0000		
		R^2 = 0.5561		
		Adj R^2 = 0.5138		
		Root MSE = 4.7818		

Source: Field Survey data analysis result. *** P≤0.01, **P≤0.05,*P≤0.10.

4 Conclusion and recommendations

Cooperatives are jointly owned enterprises established to serve its members and jointly meet, or improve their social, cultural, and economic needs. The joint effort portrays Corporate Responsibility (CR) which also promotes the achievement of Co-operative identity through members' effective and regular participation. The study result showed that poultry farmers with access to training can operate a relatively larger farm size and with larger farm output relative to their counterparts deprived of training access. Also, regarding regularity of meeting attendance among members, those regular in meetings are found to operate relatively larger farms and have larger outputs. Considering the effect of Cooperatives membership duration on output level, there exists a positive relationship between length of Cooperatives membership duration, farm size, and output level.

On the effect of meeting frequency on output level, monthly meeting as opposed to weekly meeting have a positively significant effect in promoting increased farm holding, and production output level. Those who meet monthly apparently operates relatively larger farm size. Analytical results on membership duration, and multidimensional poverty showed that, there is negative relationship between duration of membership (in years) and multidimensional poverty indices. Considering MAR; members' commitment to regular meeting attendance reflects one of the cooperative identities, which is "self-responsibility".

This "self-help" or "self-responsibility" which cooperatives upholds is expected to facilitate significant achievement of social, economic, and other goals and aspirations among members proportionately and vice versa. However, variant factors influence this wherein some members are more regular than others in scheduled meetings with its outcome consequences. We discovered in this study that Cooperative participation promotes or help to consolidate cooperative identity. Total per capita expenditure, alongside gender of household head significantly influences MAR positively but was however negatively influenced by years of formal education.

Finally, on CMD is a dimension of the cooperative identity of "solidarity" which determines how long cooperators decides to uphold their membership participation, based on reconciliation between their short term and long-term expectations. From this research it was found that years of formal education and regularity status negatively affects cooperative membership duration, while years of farming, alongside total per capita expenditure were found to positively influence duration of cooperative membership, and also significantly influenced by multidimensional welfare hereby indicat-

ing the positive relationship of MAR and CMD with the achievement of the UN's Sustainable Development Goals (SDGs) of Zero Poverty, and quality Education (see UNDP; OPHDI, 2020).

Sequel to the empirical findings, the following recommendations are hereby proffered; firstly, education, and training of cooperators as an important cooperative principle was found to positively impact farm output promotion. This is evidence of positive cooperative identity among the cooperators which is particularly cooperatives' self-help value hence, periodic trainings should be embraced, and made accessible to farmers at appreciable time intervals by Governments and, or Cooperatives while providing input supports to training beneficiaries to boost production. Also, training capacities of existing cooperatives should be improved dynamically to sustainably accommodate and well address the divergent needs of potentially increasing membership. This can be improved upon when governments provide training facilities for cooperatives to boost their capacities and allow or establish good Public Private Partnerships (PPPs) with cooperatives while avoiding cooperative ownership/control challenges that may develop in this course. Consistent cooperative membership and regularity in meeting attendance was also found to be significantly essential hence, should be encouraged especially among the middle-upper class, and experienced farmers who have tendencies of low cooperative turnout as found in this study because cooperative membership promotes multidimensional welfare statuses which no one can seem to have too much of.

Also, beneficiaries of government Agricultural/entrepreneurial credits schemes of the Central bank of Nigeria (CBN) e.g., Agri-Business Small and Medium Enterprise Investment Scheme (AGSMEIS); the Bank of Agriculture (BOA); Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL); Bank of Industries (BOI) and other credit/grant issuing establishments, should be attached to registered and highly performing cooperatives during and after their trainings with their respective trainers in order to further provide necessary supports and also help in sustaining a better post-training performance and to also help increase and maximise their delivery potentials. Finally, reinforcing incentives should be provided for highly participating cooperators, to encourage improved members' participation, and consolidate increased cooperatives' collaborative goal achievements and foster a sustainable post Covid-19 Era.

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